

# An illustrated catalogue of Rudolf Sturany's type specimens in the Naturhistorisches Museum Wien, Austria (NHMW): more Red Sea species

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## Abstract

Rudolf Sturany published a series of papers describing multiple gastropods and bivalves from the Red Sea collected during the expeditions of the vessel “Pola” between 1895 and 1898. In a less known paper, he introduced the genus *Levanderia* (Galeommatidae) and described three more species from the Red Sea: *Drillia levanderi*, *Levanderia erythraeensis* and *Raeta jickelii*. We here list and illustrate their type material, provide the original description, a translation into English and curatorial and taxonomic comments.

## Key Words

Anatinellidae, Bivalvia, Drilliidae, Galeommatidae, Gastropoda, Indo-Pacific province, Turridae s.l., Type specimens

## Introduction

In a series of illustrated catalogues, we revised the type material of the marine species described by Rudolf Sturany, curator of the molluscan collection at the Natural History Museum in Vienna between 1889 and 1922 (Albano et al. 2017, 2018, 2019). Sturany worked on samples collected during the “Pola” expeditions to the Mediterranean and Red Sea (Schebeck 1996; Stagl 2012) introducing 15 names for the eastern Mediterranean Sea and 56 from the Red Sea. In a short paper published in 1905, he described three additional species and introduced the genus *Levanderia*. These samples were sent to him by K.M. Levander and C.F. Jickeli.

Kaarlo Mainio Levander (1867–1943) was a Finnish zoologist, working at the Zoological Museum of the University of Helsinki. He travelled to the Red Sea in the 1890s. Carl Friedrich Jickeli (1850–1925) was a Romanian (Transylvanian) zoologist and malacologist born in today's Sibiu (Romania), a city named Hermannstadt at the time of the Austro-Hungarian Empire. He spent sever-

al months between 1870 and 1871 collecting continental and marine molluscs along the Red Sea. His field trip notes (Jickeli 1873a, b, c) are allegedly the first written report of a collecting trip focused exclusively on molluscs and were translated into English (Jacobson 1974, 1975a, b, c).

Inspired by recommendation 72F.4 of the International Code of Zoological Nomenclature (ICZN 1999) that invites institutions to publish lists of name-bearing types in their possession, we complete the revision of the type specimens of Sturany's marine taxa by treating here these last three species.

## Materials and methods

Type series of Sturany's species were segregated from the general collection. For each species, we here provide references to the original description and figure, indicate the original localities, list the type material, reproduce the original description and translate it into English. All the mentioned inventory numbers refer to the Mollusca

collection of NHMW. The systematic arrangement follows Bouchet et al. (2010, 2017). The re-assessment of the current taxonomic status of Sturany's names is beyond the scope of this paper, but we added notes on their validity according to MolluscaBase. Any citation to the International Code of Zoological Nomenclature (ICZN 1999) should be considered to its online version, which includes all recent amendments. We follow the guidelines for the citation of specimen data by Chester et al. (2019). Photos were shot with a Nikon SMZ25 microscope; larger shells were photographed with a Nikon D7200 camera and a Nikon Micro-Nikkor 60 mm lens. Specimens were measured with a calliper.

## Abbreviations

<b>H</b>	height (gastropods), umbo-ventral dimension (bivalves)
<b>L</b>	antero-posterior dimension (bivalves)
<b>NHMW</b>	Naturhistorisches Museum Wien, Austria

## Systematic list of taxa

### Family Drilliidae Olsson, 1964

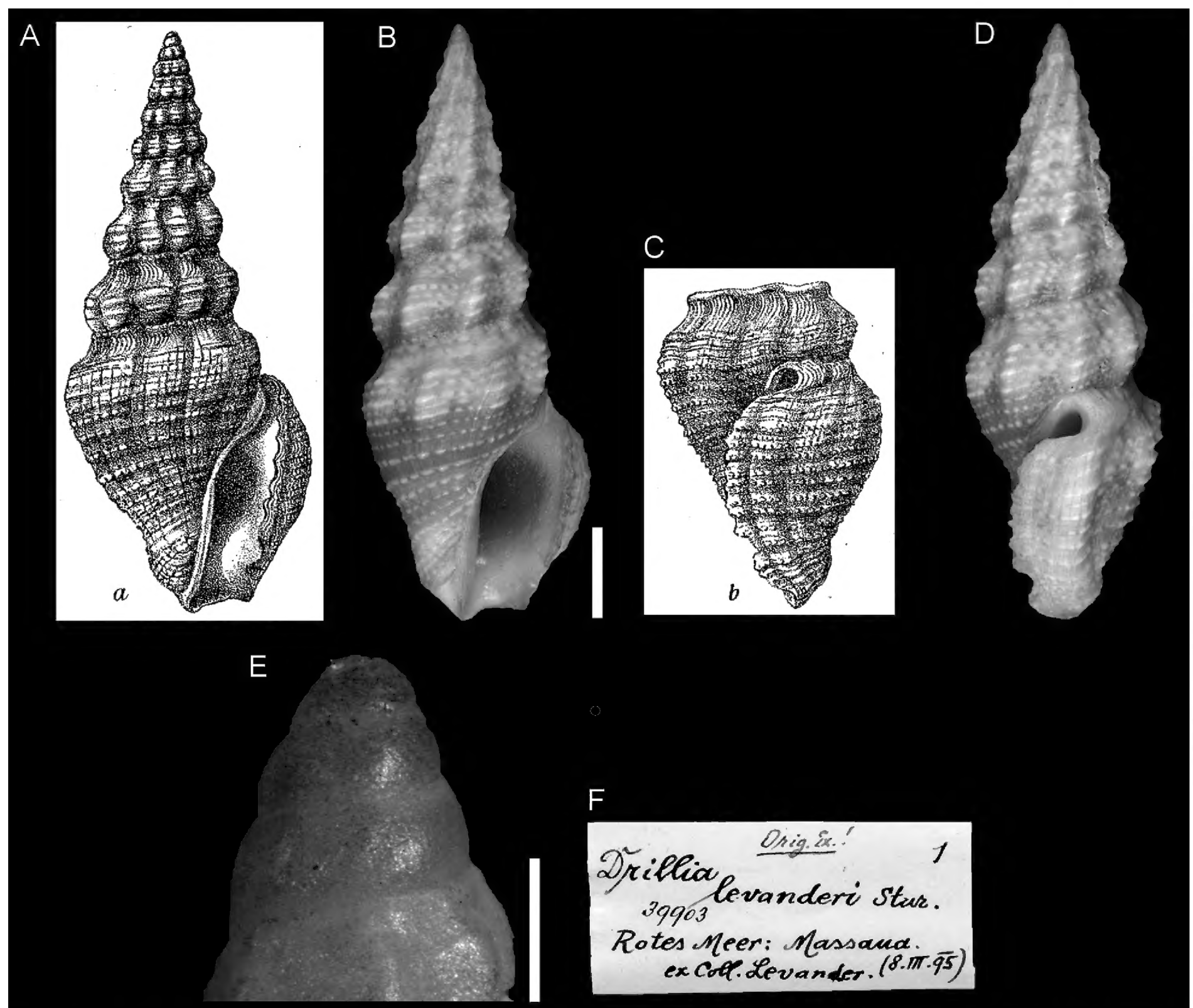
#### *Drillia levanderi* Sturany, 1905

Figure 1

*Drillia levanderi* Sturany, 1905: 135–146, with two figures.

**Type material.** ERITREA • 1 shell; Massaua; 8 Mar 1895; K.M. Levander coll.; holotype fixed by monotypy; NHMW-Mollusca 39903; size H = 19.7 mm.

**Original description.** *Das 19,5 mm hohe, 7,2 mm breite und durch eine 8 mm hohe Mündung ausgezeichnete Gehäuse besteht aus 11 Umgängen. Die ersten 2 1/2 – 3 Windungen sind glatt, dann setzen starke Querswülste ein, zu denen die allmählich stärker werdenden Spiralreifen kommen. Der letzte und vorletzte Umgang trägt 8, die oberen besitzen 7 Querswülste. Auf der Schlusswindung reichen sie kaum bis zur Hälfte, so dass die dunkelviolettfarbene Basis*



**Figure 1.** *Drillia levanderi* Sturany, 1905, Massaua, Eritrea. A, C. Original figures in Sturany, 1905; B, D, E. Holotype NHMW-Mollusca 39903: front (B), side (D), apex detail (E); F. Original label. Scale bars: B, D: 3 mm, E: 0.5 mm.

des Gehäuses davon frei bleibt, hingegen steht knapp vor der Mündung ein mächtiger Wulst, der vom oberen Ausschnitt bis zum Basalteile reicht. Die dunkle Farbe der Schalenbasis wird durch eine breite Binde bedingt, welche sich bis in die oberen Umgänge verfolgen lässt, indem sie hier zwar in die Naht einbezogen ist, aber noch in Form von miteinander verbundenen Flecken hervortritt. Von den Spiralreifen ist zwar der oberste, in dem etwas tiefer gelegenen Windungsteil verlaufende durch gelbe Flecken besonders markiert, aber auch die darunterliegenden lassen solche Flecken da und dort erkennen, insbesondere auf dem letzten Umgange. Hier präsentieren sich die nächst dem Gehäuseende verlaufenden perlschmürartig gezierten Reifen auf dem dunklen Grunde auffallend schön. Der Mündungsrand ist gezackt, oben stark ausgeschnitten, unten ausgussartig zurückgebogen; die Mündungswand trägt oben gegenüber dem Ausschnitte eine starke Verdickung, das Innere der Mündung ist rosafarbig.

Fundort: Massaua (Dr. Levander leg. 8. III. 1895).

Verwandte Formen dürften *Pleurotoma alabaster* Rve. und *Drillia japonica* Lischke sein.

**Translation.** The 19.5 mm high, 7.2 mm wide shell, which is distinguished by an 8 mm high aperture, consists of 11 whorls. The first  $2\frac{1}{2}$  – 3 whorls are smooth and followed by strong axial ribs, which are joined by gradually growing spiral cords. The last and penultimate whorl carry eight axial ribs, the upper ones have seven. They hardly reach half of the last whorl, so that the dark violet-coloured base of the shell remains free; on the other hand, just before the aperture, there is a strong varix that extends from the anal sinus to the basal part. The dark colour of the shell base is caused by a wide band, which can be traced right up to the upper whorls where it is covered by the following whorl, but still emerging in the form of interconnected spots.

The top spiral cord is in the lower part of the whorl and is particularly marked by yellow spots, but the ones lying underneath also show such spots here and there, especially on the last whorl. The pearl cord-like bands are strikingly beautiful on the dark background. The outer lip is jagged, with a marked anal sinus, bent back like a spout; the inner lip has a strong varix on top, the inside of the inner lip is pink.

**Location.** Massaua (Dr. Levander leg. 8. III. 1895).

Related species include *Pleurotoma alabaster* Rve. and *Drillia japonica* Lischke.

**Comments.** This species is not present in MolluscaBase (2020).

## Family Galeommatidae Gray, 1840

### *Levanderia erythraeensis* Sturany, 1905

Figure 2

*Levanderia erythraeensis* Sturany, 1905: 134–135, with two figures.

**Type material.** ERITREA • 1 specimen (shell and soft parts originally preserved in ethanol and then dried); Massaua; 8 Mar 1895; in coral block; K.M. Levander coll.; holotype fixed by monotypy; NHMW-Mollusca 39894; sizes: H = 2.5 mm, L = 8.1 mm.

**Original description.** Die nahezu flach ausgebreiteten, in einer Ebene liegenden, mithin im höchsten Masse klaffenden Schalenhälften sind von vorne nach rückwärts leicht gewölbt, was durch eine quer über die Wirbelgehend laufende Knickung verursacht wird, und liegen einem oben abgeplatteten Weichkörper auf, der auf ihren Innenseiten die zarten Spuren des Mantelrandes und der Muskelumrisse hinterlassen hat. Die Breite der zusammenhängenden Schalen beträgt 5 (mithin die Höhe jeder Valve  $2\frac{1}{2}$  mm), ihre Länge 8,1 mm.

Der Oberrand jeder Schale verläuft gerade und ist zur Hälfte mit seinem Gegenüber durch ein zartes Häutchen verbunden; bloss ungefähr 2 mm tiefreicht vom abgerundeten Vorder- und Hinterrand herein ein schmaler Spalt. Der Unterrand läuft nahezu parallel zum Oberrand und weist bloss eine zarte Einbuchtung in der Mitte auf.

Die winzigen, etwas aus der Mitte gerückten Wirbel liegen zitzenförmig in einem weissen Felde, während der übrige Teil der Schalen mit einer hellgelben und zarten Epidermis überzogen ist, welche die höchst eigentümliche Skulptur (vielfach geknickte und gewellte aber streng genommen konzentrische Linien) angenommen hat. Die Innenseite der Schalen präsentiert sich kreideweiss.

Von einem Schlosse kann kaum die Rede sein; es ist bloss eine sehr kleine, zapfenförmige, beiden Schalen gemeinsam entspringende Bildung zu sehen.

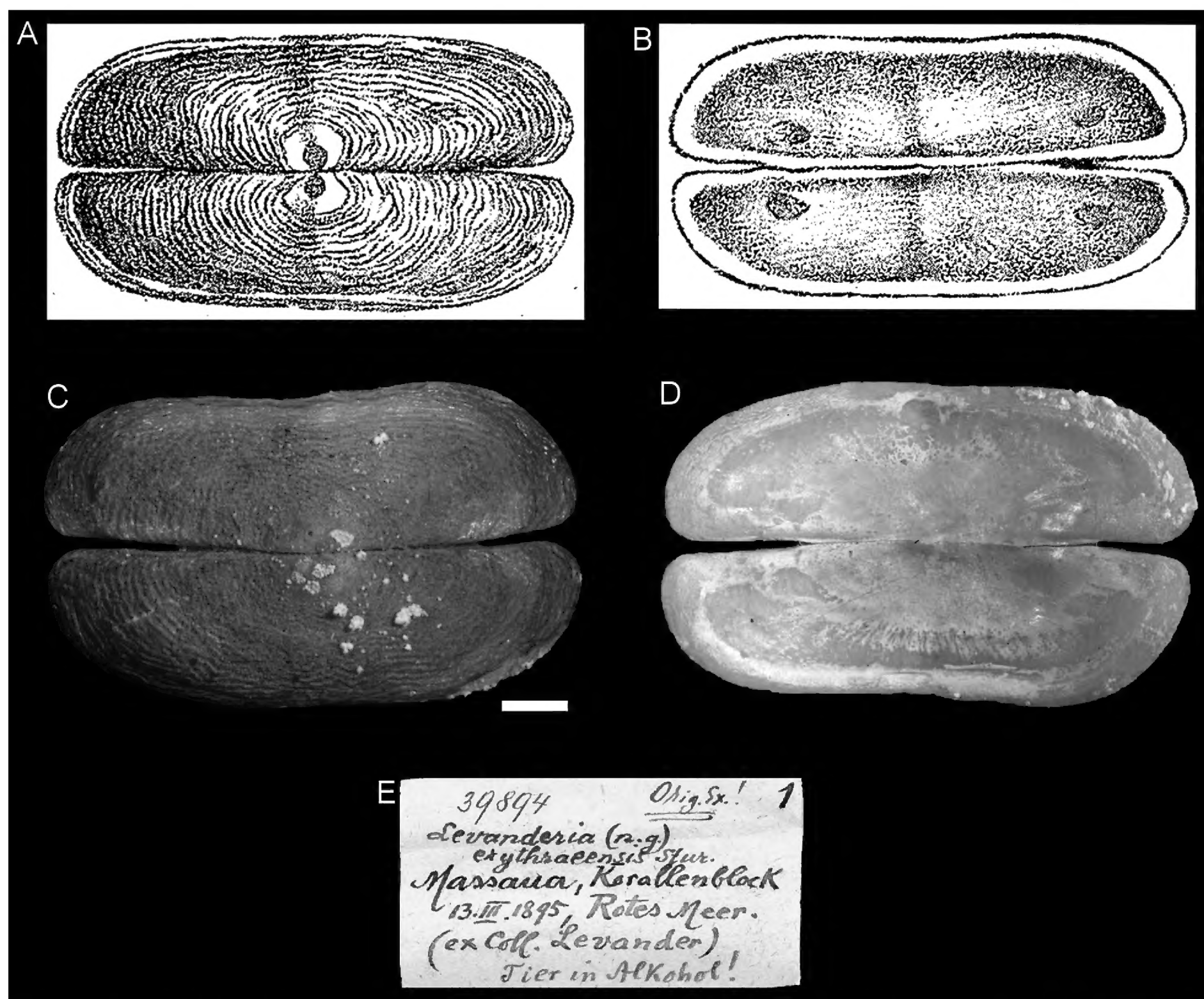
Diese interessante Muschel wurde von Dr. Levander in Massaua am 13. III. 1895 in einer Korallenbank gefunden. Sie erinnert im Schlosse an die Gattung Galeomma (beispielsweise an *G. denticulata* Desh. von der Insel Reunion) und in der Lage der Schalen an die australische Gattung Ehippodonta Tate, weicht aber von beiden durch ihre Skulptur ab.

**Translation.** The valves, which are almost flat on one level and therefore opened to the greatest extent, are slightly arched from anterior to posterior, due to a ridge running across the beak, and lie on top of a flattened soft body that leaves inside delicate traces of the pallial sinus and the muscle scars. The width of the open valves is 5 mm (thus the height of each valve is  $2\frac{1}{2}$  mm), their length 8.1 mm.

The upper margin of each valve runs straight and is half connected to its counterpart by a delicate membrane; a narrow gap of about 2 mm extends from the rounded anterior and posterior margin. The lower and upper margins run almost parallel and show just a delicate indentation in the centre.

The tiny beaks, somewhat eccentric, lie teat-like in a white area, while the remaining part of the shells is covered by a light yellow and delicate epidermis, which has taken on the highly peculiar sculpture (often bent and wavy, but strictly speaking concentric lines). The inside of the valves is chalky white.





**Figure 2.** *Levanderia erythraeensis* Sturany, 1905, Massaua, Eritrea. **A, B.** Original figures in Sturany, 1905; **C, D.** Holotype NHMW-Mollusca 39894: outside view (**C**), inside view (**D**); **E.** Original label. Scale bar: 1 mm.

There is hardly any hinge, only a very small, cone-shaped formation originating from both valves.

This interesting clam was discovered in a coral bank by Dr. Levander in Massaua on 13 March 1895. The hinge is reminiscent of the genus *Galeomma* (for example, *G. denticulata* Desh. from the island of Reunion) and the position of the valves of the Australian genus *Ephippodonta* Tate, but it differs from both due to its sculpture.

**Comments.** This is the type species of genus *Levanderia* Sturany, 1905. The species and the genus are currently considered valid taxa (MolluscaBase 2020).

## Family Anatinellidae Deshayes, 1853

### *Raeta jickelii* Sturany, 1905

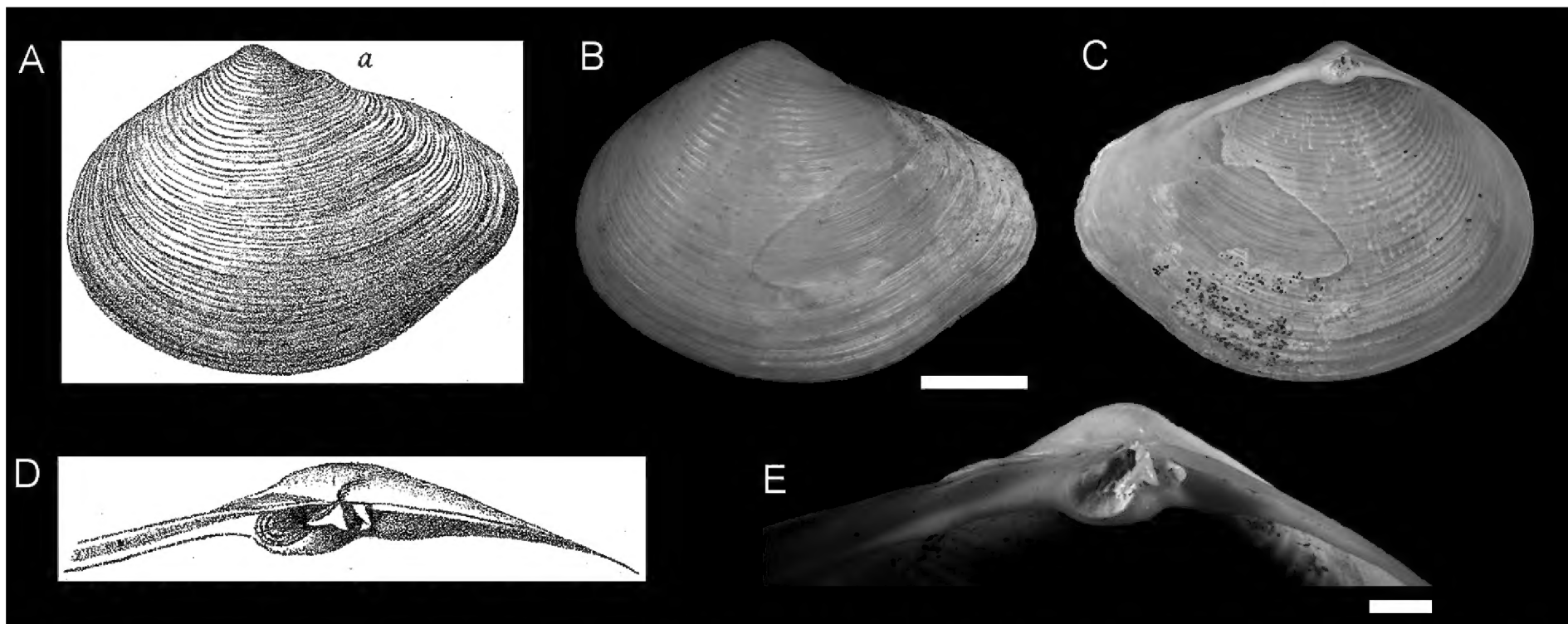
Figure 3

*Raeta jickelii* Sturany, 1905: 133–1134, with three figures.

**Type material.** ERITREA • 1 complete left valve (of the original illustration), 2 fragmented left valves; Massaua; 8 Mar 1895; C.F. Jickeli coll.; syntypes; NHMW-Mollusca 39925; sizes: H = 31.7, L = 42.8 mm.

**Original description.** Diese Art wurde seinerzeit von Dr. Jickeli in Massaua in unvollständigen Exemplaren gefunden. Es ist nämlich bloss die abgebildete linke Schale (43 mm lang, 31,5 mm hoch, 11,5 mm tief) gut erhalten und liegen überhaupt nur noch die Fragmente von weiteren 2 linken Schalen (die bis 51 mm lang und 42 mm hoch gewesen sein dürften) vor, während eine rechte Valve gar nicht vertreten ist.

Die dünnschalige Muschel hat vorne eine ziemlich starke Wölbung und endigt rückwärts in einen etwas nach aussen gekehrten Schnabel. Sie ist konzentrisch gefaltet, milchweiss gefärbt und mit mattem Glänze ausgestattet. Der Wirbel liegt vor der Mitte und überragt das Schloss, welches eine Ligamentgrube (unter dem Wirbel), 2 davorstehende vertikale Zähne und einen vor-



**Figure 3.** *Raeta jickelii* Sturany, 1905, Massaua, Eritrea. **A, D.** Original figures in Sturany, 1905; **B, C, E.** Illustrated syntype NHMW-Mollusca 39925: left valve outside view (**B**), left valve inside view (**C**), hinge detail (**E**). Scale bars: **B, C:** 10 mm, **E:** 2 mm.

deren und hinteren, dem Oberrande parallel laufenden Leisten Zahn erkennen lässt. Von den Hauptzähnen ist der vordere schwache einfach, der hintere bedeutend stärkere aber von zwei Seiten eingeschnürt, so dass er einen sternförmigen, drei-spitzigen Querschnitt haben mag. Die Muskeleindrücke sind undeutlich, die Mantelbucht reicht bis zur Mitte. Die nächstverwandten Arten sind *R. canaliculata* Say und *B. abercrombiei* Melv.

**Translation.** This species was discovered with incomplete specimens by Dr. Jickeli in Massaua. Only the figured left valve (43 mm long, 31.5 mm high, 11.5 mm deep) is in good condition and there are merely fragments of another two left valves (which were up to 51 mm long and 42 mm high), while a right valve is not present at all.

The thin-shelled clam is rounded at the anterior end and has a slightly outwards turned posterior end. It is concentrically plicated, milky white and glossy. The beak lies centrally and dominates the hinge, which reveals a ligament pit (below the beak), two vertical teeth at the front and elongated front and back teeth running parallel to the upper margin. The anterior of the cardinal teeth is weak and simple, the posterior significantly stronger, but constricted from two sides, so that it has a star-shaped, three-pointed cross section. The muscle scars are indistinct, the pallial sinus extends to the centre. The closest related species are *R. canaliculata* Say and *B. abercrombiei* Melv.

**Comments.** Currently considered a junior synonym of *Raeta pellicula* (Reeve, 1854) (MolluscaBase 2020).

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